Fact Sheet 8

SOUND GARDENING

Gardening With an Eve on Water Quality

SOIL AND FERTILITY

Protect the Soil

Soil is the essential foundation for all higher plants. Its fertility, pH (measure of acidity), moisture content and physical qualities determine how well it will support plant life. Understanding and caring for the soil will produce a healthier, more productive garden.

> The *Sound Gardening* approach to soil fertility is to have your soil tested and apply fertilizers and limestone only in the recommended amounts. By minimizing excess applications, your soil will sustain healthier plants and any impact on water quality will be minimized.

Know Your Soil

Drainage

Drainage is the ability of water to flow through the soil. Water and dissolved chemicals move quickly through coarse textured, sandy or gravely soil. Fine textured silt and clay soils and soils high in organic matter slow down the flow of water. These soil types provide sites to which plant nutrients and other chemicals can adhere.

Well drained soils that are at least two feet deep are the most suitable for all types of gardening. Soils with a high water table or those with a shallow hardpan layer will have more problems and may require site management and/or modification.

Fertility

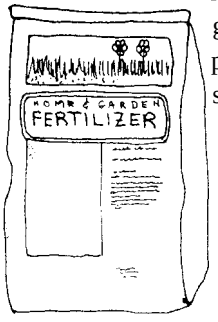
Minerals necessary to support plant life, are supplied from organic and inorganic sources. The complex chemical processes that supply plant nutrients are affected by the soil environment – moisture, temperature, pH and types of microorganisms present.

Improper application of fertilizer, including organic fertilizer, can result in loss of nutrients by surface runoff to

nearby streams, lakes, rivers or the Sound or by percolation into the groundwater. Applying too much fertilizer can:

- waste money and time
- damage plant roots
- increase susceptibility to diseases
- encourage weed growth
- pollute surface and groundwater
- stimulate unwanted growth.

To avoid overfertilization. have the soil tested through Cooperative Extension. Testing will give the level of primary plant nutrients and pH, recommended fertilizerrates to correct any deficiencies, and wam of excessive nutrient levels. It is important not to exceed the suggested rates.



Complete chemical fertilizers, containing nitrogen, phosphorus and potassium or organic sources of plant nutrients (cottonseed and bone meal, manures, compost, etc.) are available and may be used to supply needed nutrients. Because the percentage of plan; nutrients in most organic material is relatively low compared to chemical fertilizers, large amounts may be required to supply the needs of plants.

Properly timed annual or semi-annual applications of fertilizer are more beneficial to the plant's health and are less likely to cause environmental damage than infrequent, heavy, ill-timed applications.

Woody plants, as a general rule, produce an abundance of roots in the spring as the soil warms. Depending on how stressful summer weather conditions are, additional root growth will occur in the fall as the soil cools. Contolled release fertilizers can be applied in the spring or late fall if the soil has sufficient moisture. A fertilizer containing nitrogen in a slow-release form is usually recommended for fall fertilization. Avoid fertilizer application to dry soil and when soil temperatures are below 40°F.

Trees and shrubs growing in or bordering a regularly fertilized lawn will usually not need separate applications of fertilizer. Plants not putting on adequate growth or having poor foliage color may be suffering from a disorder rather than lack of nutrients. Always locate and remedy the primary cause before applying fertilizer to possibly aid in the plant's "road to recovery." Recently-installed woody plants may respond to a fertilizer application if nutrient levels are low. Usually, phosphorus is lacking. In sandy soils, nitrogen may also be in short supply.

Avoid fertilizing woody plants from mid-June through September to avoid late flushes of tender growth that will not harden off properly before winter sets in. This tender growth could be injured or killed at low temperatures, providing entry for disease during the next growing season.

Nutrients that run off in the surface water will eventually reach the Sound. High nutrient levels may cause unnatural and sometimes disastrous algae blooms. Plant nutrients or chemicals leaching into the groundwater can contaminate drinking water for this and future generations.

Conditioning

Productivity and workability of the soil can be greatly improved by mixing in suitable decomposed organic matter. This will improve the water and nutrient-holding ability of the soil, buffer temperature changes and prevent rapid fluctuations in the pH. With increased microbial activity, the breakdown of many pesticides will be aided. Because of the chemical activity associated with organic matter, bonding sites in the soil matrix will be provided for some pesticides, thus preventing their movement into the groundwater.

REMEMBER

* Fertilize according to what the plant needs.
* Do not overfertilize.
* Time application correctly.
* Add organic matter to improve soil structure.
* A healthy soil contributes to a healthy environment.

For more information on ***Sound Gardening*** and soil fertility, contact your local Cooperative Extension office.

In Connecticut:

Storrs:	(203)486–3435	Litchfield:	(203)567–9447
Fairfield:	(203)797–4176	Middlesex:	(203)345–45 11
Hartford:	(203)241–4940	New Haven:	(203)789–7865
Tolland:	(203)875–333 1	New London:	(203)887–1608
Windham:	(203)774–9600		

In New York:

Nassau	(5 16)454–0900
Suffolk	(516)727–7850
Westchester	(914)682–3072

Sound Gardening was made possible through the combined efforts of Cornell Cooperative Extension of Nassau, Suffolk, and Westchester Counties, University of Connecticut Cooperative Extension System, Nassau County Soil Conservation Service and the Sea Grant Programs of New York and Connecticut. Artwork by Susan Stone.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Connecticut and Cornell Cooperative Extension Systems, Kirvin Knox and Lucinda A. Noble Directors, the University of Connecticut and New York State Colleges of Agriculture and Life Sciences, Human Ecology and Veterinary Medicine at Cornell University.

The Cooperative Extension System provides equal program and employment opportunities.

Printed on Recycled Paper. 4/91